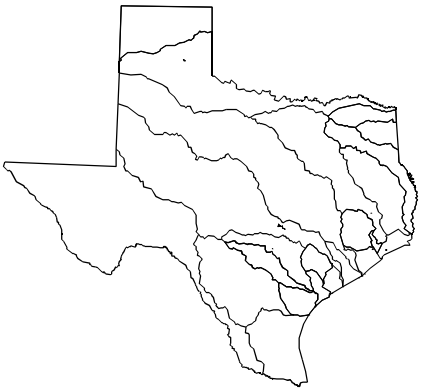
Chapter 1
Introduction

Purpose



The Texas Natural Resource Conservation Commission (TNRCC), one of the lead agencies responsible for protecting and restoring the quality and quantity of Texas' water resources, has identified areas where current water quality management program efficiency, effectiveness, and continuity can be improved through a statewide watershed management approach. This document provides background information and guidance for staff within the TNRCC for integrating and coordinating key program functions through a watershed management approach. Readers outside the agency will find this document helpful if they are interested in participating in or supporting watershed management activities in their watershed. The TNRCC welcomes and encourages any agency, group, or individual having an interest in water resources to contact the Office of Water Resource Management (OWRM) with suggestions on how their participation can strengthen the watershed approach outlined in this document.

The following chapters describe the major components of the TNRCC's approach and explain how each component will help achieve agency goals and objectives. Roles and responsibilities for specific TNRCC programs are identified, along with a plan for smooth transition to implementation. Staff will use this document as guidance when developing and implementing their program work plans, beginning with plans for fiscal year 1997.

What is Watershed Management?

Watershed management is not a new regulatory program. It is a way to coordinate the operations of existing water resource programs to better achieve water resource management goals. The watershed management approach outlined in this document is founded on existing state and federal statutes established for water quality management.

The term "watershed," in this context, is broadly defined as the geographic delineation of an entire water body system and the land that drains into it. Because of their readily identifiable boundaries, watersheds provide a functional geographic unit for coordinating management efforts. Watershed management will use watersheds as an organizing principle for TNRCC activities, based on the premise that the protection and restoration of water resources are best addressed through integrated efforts within hydrologically defined watersheds or basins.

Watershed management is a resource-centered approach involving several steps to achieve the overall goal of maintaining water quality. Success is measured in terms of improving and maintaining environmental quality and protecting public health. Implementation fosters the protection and restoration of specific water uses such as drinking water supply, aquatic life habitat and propagation, recreation, and irrigation. Sound water resource management decisions depend on understanding the relationship between water quality, water use, and conditions within the watershed. Therefore, accurate watershed assessments based on representative data and targeted monitoring are essential components. Assessments characterize physical, chemical, hydrological, and biological conditions of water bodies, identify sources and causes of water resource contamination and degradation, and evaluate the effectiveness of various management actions. The culmination of watershed-based assessments is the implementation of existing regulatory and nonregulatory management solutions that address local water resource priorities. These watershed management activities are interdependent and encompass numerous functions of the TNRCC and other management organizations. Because several different programs and agencies perform these activities, significant coordination is essential to successful management.

Why Watershed Management?

Existing TNRCC water quality management programs and their standard operating procedures have evolved over the past 25 years in response to the agency mission and changes in statutory requirements. Throughout the development of this document, the TNRCC and other parties interested in water resource management identified a variety of current operating procedures and activities which were in need of improved coordination and refinement. Changes to the current process of water quality management are therefore necessary to more effectively meet the objectives and requirements of statewide water quality standards and water quality statutes. Aspects of current programs in need of improvement include, but are not limited to

- the methodology for selecting priority watersheds as required by the federal Clean Water Act §303(d);
- the development and implementation of total maximum daily loads (TMDLs) as required by the federal Clean Water Act §303(d);
- the coordination of the assessment activities and reporting requirements of the TNRCC surface water quality monitoring programs, the Nonpoint Source Program, and the Clean Rivers Program;
- water quality monitoring plans to support evaluation of water quality standards compliance, wastewater permitting, and TMDLs;
- programmatic limitations in the allocation of federal and state funds;
- the monitoring and characterization of nonpoint source pollution loadings ;
- the timing and sequence of program outputs;
- the timing and availability of opportunities for local participation throughout the water quality management process.

Acknowledging these needs, the TNRCC has established a framework for coordinating and implementing existing programs through a watershed-based approach. The watershed management approach is the logical progression for the TNRCC's water quality management programs. Its implementation provides the method for the development of TMDLs and the establishment of appropriate water quality standards throughout the state.

Specifically, the watershed management approach provides the process necessary for the

- implementation of a consistent, scientific method for selecting priority watersheds which will provide the rationale for targeting limited state and federal funding;
- preparation of TMDLs for priority watersheds as required by the Clean Water Act §303(d);
- consolidation of surface water quality reporting requirements mandated by the Clean Water Act §§305(b) and 319(h), and the Clean Rivers Program;
- assessment of the scientific data required to allow flexible regulatory decisions (e.g., wastewater permits) that recognize geographic differences in climate, topography, and demographics that affect water resources;
- better coordination and consolidation of objectives between existing water quality management programs at the local, regional, and state levels;

- establishment of a "market-based" environmental policy for pollutant trading;
- initiation of a consistent, continuous forum for intergovernmental coordination, which is required to develop water pollution control strategies (pollution reduction goals, point and nonpoint source pollutant allocations) that cross program purviews and political jurisdictions.

How is the TNRCC Developing the Approach?

Extensive planning has gone into the development of a statewide watershed management approach in Texas. The TNRCC and the U.S. Environmental Protection Agency (EPA) collaborated to fund the development of this guidance document. The Cadmus Group, Inc., a consulting firm with extensive experience helping states develop statewide watershed management frameworks, assisted the TNRCC in developing the document. Also, the TNRCC held numerous meetings with representatives of stakeholder interests,[1] as well as work groups within the TNRCC in 1995 and 1996, to identify opportunities and constraints associated with converting existing program activities to a watershed-based approach. During these meetings, the TNRCC obtained valuable input on expectations of stakeholders and needs of existing water quality management programs.

Initial Focus

The TNRCC is committed to implementing its watershed management approach through its existing water quality management programs and in accordance with its mandates. Initial efforts will concentrate on the agency's OWRM and Field Operations Division, focusing on coordinating and integrating watershed assessment, monitoring, modeling, toxicity evaluation, nonpoint source pollution, ecosystem research, water quality standards, and wastewater permitting. Throughout fiscal years 1997–1998, emphasis will be placed on synchronizing program work plans and outcomes with the statewide schedule for implementation, improving public participation through the basin steering committees (described on pages 4-6), and moving from assessment of water quality issues to developing management strategies for priority watersheds.

Long-Term Commitment

The TNRCC envisions a dynamic, flexible framework for watershed management in which all interested programs and parties can participate. As opportunities arise, the TNRCC may integrate additional agency program activities. Participation and contributions to the watershed management approach by organizations or individuals outside the TNRCC will be continuously promoted.

Goals and Objectives

Part of the TNRCC's overall mission is to ensure a safe, clean, and affordable water supply for Texas. In an effort to refine its existing water resource goals, the TNRCC conducted an evaluation of its water quality program. In response to these recommendations and the programmatic needs identified by the Office of Water Resource Management, the TNRCC established the following goals and objectives to guide the short- and long-term direction of the statewide watershed management approach. Since the watershed approach is not a new program, but is simply an improved process for consolidating multiple program objectives, more attention will be focused on water resource protection and restoration than on individual program outputs.

[1] A stakeholder is defined as any entity involved in or affected by watershed management activities within a watershed, including the general public and the regulated community. For a description of stakeholders, see "Stakeholder Involvement," p. 2-11.

Goal 1: Implement a Consistent Method for Establishing Total Maximum Daily Loads

The point source pollution control approach of Texas' water quality management programs has matured and become successful. However, many different nonpoint pollutant sources continue to threaten public health and ecosystems in Texas. The regulatory control of point source dischargers alone cannot adequately protect and restore water quality. Under the federal Clean Water Act §303(d), the TNRCC is required to establish load allocations for point and nonpoint source pollutants in water bodies that do not meet their designated use. Coordinated regulatory and nonregulatory solutions at the watershed level are necessary to address the combined effects of point and nonpoint source pollution.

Short-Term Objectives

1. Implement a consistent methodology for selecting high-priority watersheds as required by §303(d) of the federal Clean Water Act.

2. Adopt a schedule for development of TMDLs for high-priority watersheds.

3. Establish consistent methods and means for identifying, evaluating, and selecting management alternatives and funding mechanisms to achieve point and nonpoint source pollution load allocations in priority watersheds.

4. Establish a regular forum for continuous coordination with other agencies and organizations with management authority of nonpoint source pollution.

Long-Term Objective

Implement innovative techniques, such as pollutant trading for managing pollution sources within a watershed.

Anticipated Benefits

1. Improved process for targeting, evaluating, and addressing local water resource issues in each basin.

2. Improved compliance with the federal Clean Water Act and attainment of state water quality standards.

3. Consolidation of multiple water quality program objectives and resources to focus on the development of TMDLs.

Goal 2: Increase the Flexibility of TNRCC Operations to Accommodate Geographic Differences in Local/Regional Water Resource Priorities

Texas contains 11 distinct ecoregions, from desert in the West to coastal wetlands in the East. Numerous stakeholder groups have expressed concerns that certain federal and state water resource management requirements, such as water quality standards, may be too stringent to accommodate such variations in local conditions. With such great ecological diversity across the state, it is essential to provide flexibility in TNRCC programs and policy to accommodate geographic differences among local water resource issues.

Short-Term Objectives

1. Coordinate and target TNRCC programs and activities to make better use of site-specific data in order to establish designated uses, water quality standards, and permit effluent limits that reflect local conditions.

2. Obtain commitments necessary to update, maintain, and report the priority water body list required by CWA §303(d) on a watershed-by-watershed basis rather than producing a statewide list every two years.

Long-Term Objective

Identify strategies and adopt alternatives to achieve water quality protection goals, such as creating additional categories for designated uses and water quality criteria.

Anticipated Benefits

1. Improved process for targeting, evaluating, and addressing local water resource issues in each basin.

2. More balanced combinations of regulatory and nonregulatory management strategies that are tailored to meet basin-specific issues.

3. Enhanced working relationships between the TNRCC and other stakeholders through greater attention to local issues and priorities.

Goal 3: Implement Cost-Effective Solutions to Water Quality Problems

In a climate of decreasing budgets and increasing demands, governmental and private organizations are searching for ways to make the best use of limited funds, such as the use of in-kind services to match federal grant monies. Organizations responsible for contributing funds to support water resource management are demanding more return on their dollar. The TNRCC will streamline its operations to promote and develop cost-effective solutions focused on achieving environmental results.

Short-Term Objectives

1. Provide facilitation and technical support to basin steering committees to identify, evaluate, and select cost-effective management options.

2. Establish a formal process for translating local watershed priorities (as determined by CRP contractors and basin steering committees) into TNRCC work priorities.

3. Improve the ability of TNRCC to identify watersheds where rapidly growing rates of land disturbance or other contaminant sources are likely to impair water quality, and recommend protection measures to prevent costly restoration.

Long-Term Objectives

1. Develop decision support tools (e.g., environmental indicators and criteria for ranking watershed-specific water resource issues) to help plan and implement geographically based, cost-effective management strategies.

2. Identify opportunities to better integrate pollution prevention concepts into the operations of the TNRCC's water-quality-related programs.

3. Coordinate the federal grant process with watershed implementation to augment existing state and local programs. This will maximize the efficiency of state matching dollars and decrease reliance on state general revenues.

4. Establish, track, and report to the state and federal governments, an appropriate list of environmental indicators, outcome measures, and output measures for water quality management programs.

Anticipated Benefits

1. Greater protection of water resources in Texas by focusing efforts on the actual resource rather than on program outputs.

2. Increased confidence on the part of the regulated community and general public that private and public funds are being used wisely to make a difference in the protection of resources.

3. Improved TNRCC staff morale through greater assurance that their efforts are being targeted to achieve the highest environmental benefit for each dollar spent.

4. Less reliance on general revenue for some TNRCC programs, and use of CRP and local funds to leverage federal dollars at no additional cost to the state treasury.

Goal 4: Increase the Scientific Validity of Water Resource Management Decisions

The public wants water resource management decisions to be based on scientifically valid data that reflect local conditions. In the absence of sufficient, accurate, and timely data, some water resource management decisions can have unnecessarily costly impacts on the regulated community and the public. Additionally, water quality data collected by multiple organizations are often contradictory because uniform quality assurance and quality control methods are not used across organizations. To adequately address these issues, it is essential to collect geographically targeted data through common, scientifically sound methods. The TNRCC will use a coordinated monitoring approach to improve its information base and decision-making criteria and to ensure a comprehensive, uniform quality assurance/quality control plan for all data gathering activities.

Short-Term Objectives

1. Improve the protocols and guidance for obtaining sufficient data (e.g., chemical, physical, biological, and hydrological) to evaluate unclassified waters, revise water quality criteria and standards, establish total maximum daily loads (TMDLs), and set wastewater effluent limits.

2. Expand the TNRCC's historical focus on monitoring and assessment of point source impacts to include nonpoint source impacts within watersheds.

3. Provide consistent and timely technical support to each basin steering committee.

4. Require the use of the TNRCC's quality assurance/quality control plan for use by all water quality monitoring partners.

Long-Term Objectives

1. Implement monitoring and assessment protocols that support additional water quality criteria (e.g., fecal coliform, sediment, biological communities, and chlorophyll *a*) and coincide with sampling requirements of water quality standards.

2. Develop and use geographic information systems and hydrologic models as decision support tools.

Anticipated Benefits

1. Availability of a broader database of water resource information from which to establish the status and trends of water quality throughout the state.

2. More consistent and efficient process for collecting, updating, analyzing, and distributing data.

3. Increased stakeholder support of TNRCC management decisions and actions based on scientifically valid information, potentially reducing legal challenges and increasing success.

Goal 5: Improve the Administrative Efficiency of the TNRCC's Water Resource Programs

Many water resource management programs operate under specifically defined mandates, and program managers are restricted from considering information outside these mandates in making their decisions. This fragmented response to water quality issues results in duplication of effort, poor communication between programs, and conflicting priorities. By synchronizing water quality programs through a watershed management approach, the TNRCC can improve administrative efficiency.

Short-Term Objectives

1. Coordinate and combine annual work plans of TNRCC surface water quality programs to synchronize with the proposed cycle of watershed management activities.

2. Evaluate current use of staff, procedures, and technology to identify opportunities for improved efficiency, and develop and implement a plan to refine operations accordingly.

3. Obtain commitments at all levels necessary to consolidate and synchronize current water quality assessment reporting requirements.

4. Geographically prioritize the evaluation of unclassified waters and designated uses.

5. Develop and implement appropriate standard operating procedures, rules, or program guidance to clarify program responsibilities and support implementation of the activities associated with the watershed management approach.

6. Ensure the most efficient allocation of resources among water resource programs within the agency and for pass-through dollars outside of the agency.

Long-Term Objectives

1. Synchronize annual work plans of other TNRCC water resource programs, where appropriate, with the proposed cycle of watershed management activities.

2. Restructure the statewide triennial water quality standards review process to coincide with the targeted monitoring and assessment of the statewide watershed management schedule.

3. Develop a fiscal accounting mechanism to provide periodic accounting of fee dollars for each river basin.

Anticipated Benefits

1. Improved coordination and communication among TNRCC water resource programs.

2. Improved coordination in setting priorities and establishing common goals among TNRCC water resource programs.

3. Improved targeting of staff and funds to address highest-priority concerns.

4. Achieving more balanced work loads by clarifying responsibilities and synchronizing with the watershed management cycle.

5. Reduced paperwork through consolidation of reporting requirements.

Goal 6: Improve Public Participation in Water Resource Management

Elected officials and public agencies throughout Texas seek public support for their technical, policy, and budgetary decisions. Concurrently, there is a need for better communication between government agencies and stakeholders who live and work in each river basin. A consistent watershed management planning process provides opportunities for meaningful public participation in water resource management decisions.

Short-Term Objectives

1. Establish an ongoing process for relying on existing basin steering committees throughout the cycle of watershed management activities—from the identification of problems through the implementation of solutions—to set basin-specific goals, priorities, and recommendations for use in guiding TNRCC program decisions.

2. Broaden stakeholder representation and improve participation and communication in existing basin steering committees.

Long-Term Objectives

1. Establish a network to involve other TNRCC resource programs (such as groundwater, waste management, and pollution prevention) in decision making to address environmental quality issues in individual river basins.

2. Promote watershed management at the local level by improving opportunities for participation from local governments, private citizens, state and federal agencies, and the regulated community.

Anticipated Benefits

1. Improved communication between stakeholders and the TNRCC.

2. More support at the local level, because stakeholders are included throughout the watershed management process. This support leads to more cost-effective management strategies with wider public acceptance.

3. Increased public awareness of water quality issues and responsibilities of state and federal agencies.

4. Improved communication of local concerns, goals, and priorities to the TNRCC and other water resource managers.